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[ORIGINAL.]

A BOLD GUESS ON GEOLOGY,

BY A BACK-WOODS-MAN.

[*Continued from page* 58.]

TO THE EDITOR.

SIR,—The cause of those alternate revolutions from sea to land, and from land to sea, which M. Cuvier has pointed out, must, as I have already said, be regarded as one and the same, or, at least, as of the same kind with that which, at a more remote period, "gathered the waters together so as to let the dry land appear;" and though the analogy be not so perfect as to the kind of effect produced, yet the analogy as to the *magnitude of force* required forbids us to ascribe to any but to this same cause those stupendous changes among the solid strata of the globe, the evidences of which are everywhere so conspicuous. A force of this magnitude must be of universal application; and to suppose more than one such, would be to forget that Nature, whose operations we are endeavouring to trace, "combines the possession of infinite resources with the most economical application of them."

To the same disturbing force, then, which has repeatedly changed the bed of the sea, I am disposed to ascribe all those inequalities and evidences of change on the surface of the land which are too great to be the result of causes now in action. None but the power capable of removing an ocean can have sufficed to heave up our mountains, or to hollow out our valleys. None but a power of the same kind can have "burst asunder the massy pavement of the globe, and placed the fragments upright on their edges; and, by the same effort, have raised them from the greatest depths of the sea to the highest elevations of the land." None other can have sufficed to effect those wonderful changes termed "denudations," by which large portions of the superior strata have been torn up and swept away from the extensive tracts which they formerly covered. The cause that was adequate to one of these effects must have been adequate to them all. Some of them, it is true,—some of the denudations, for instance, and the excavation of some valleys, may appear to have been produced simply by the action of descending torrents; whereas others, such as the fractures and dislocations, and upheavings and angular movements of the solid and once horizontal strata, cannot be explained, without supposing either an elevation, or some other change in the situation of the land itself. This difference is, however, only an apparent one; for, when we think correctly, we must perceive that, in both cases, it is necessary to suppose a movement in the land; for water, it is obvious, could not run down a hill, till a hill had been made for it to run down. The existence of the hill itself is a phenomenon which it behoves a geologist to account for. Even Scheuchzer, who cuts the knot by referring to the agency of God, sees the necessity of this, when he tells us that "God elevated the mountains, in order that the waters of the deluge might run off." But we are so much in the habit of seeing water in motion, and *terra firma* at rest, that we are apt to forget that as much force is required to lift a given weight of one as of the other; and we sometimes see even philosophers fall into the vulgar error of assigning the motion of water as the cause of former motions amongst the solids, without thinking it necessary to explain what it was that gave motion to the water itself.

Mr. Playfair speaks somewhere of water as being the "favourite element" of the Neptunians, but it seems to be a favourite with himself, and with almost all geologists, when a moving power is wanted; they cling to it as those did who in the early days of the steam-engine employed it to raise water wherewith to turn a water-wheel, not considering that the power which could raise a sufficiency of water, might be made to turn the wheel itself, without its being necessary to employ the water as a go-between. Thus, to move a boulder-stone of a ton weight, they call in the assistance of a torrent of water of a thousand or of ten thousand tons! not seeming to reflect that water, though it moves so easily down hill, is no more inclined to run up hill, than the stone itself; yet up hill it must have been got, ton by ton, before it could, in the form of a descending torrent, run down again! Then again, we speak perpetually of water-worn pebbles; as if no power but that of moving water could have rounded off their corners; but surely a sufficiency of friction or trituration would round fragments of the hardest rocks, without the presence of water at all; though water, by washing away the detritus as fast as formed, might perhaps hasten the work, as well as make it smoother. The man who, in your town, was formerly in the practice of what was called, "sweating guineas," by shaking them together in a bag for the sake of the gold dust, never thought (I durst wager one of the guineas) of employing water in the process! and there can be no doubt that dry-rubbing would suffice to sweat pebbles as well as guineas. The existence of rounded pebbles is, however, generally regarded as no less indicating the former presence of water than the existence of shells themselves; and it is probably the fact, that "out of place" pebbles and boulders have, in most cases, been attended in their travels, or followed by water; for the power which moved them "out of place," would, doubtless, move "out of place" the water also; but the water cannot be regarded as the cause of motion in the pebbles, any more than the pebbles can be regarded as the cause of motion in each other. The whole torrent, water, pebbles, and gravel together, acts in a body against any thing which obstructs its progress; and the force with which it acts is proportional, not only to the weight of the water, but also to the weight of the solid materials which have been already set in motion. But the water alone is spoken of as the moving power; and to its operation, effects the most various and opposite are ascribed. It must have been able to effect extensive denudations in one place, and to deposit beds of gravel equally extensive in another place;—it must have been able not only to excavate valleys, but also to fill them up again;—in short, it is by many geologists made to serve the office of *factotum;* and I am not disposed to deny that it has, in many cases, been very instrumental in modifying, though not in causing, the great changes which we are seeking to account for.

I am quite willing to admit, that the same running stream may, in one part of its course, wash up and carry away the solid matters which form its channel, and deposit them again in another part, where it runs less rapidly; but I cannot see why it should perform both these operations in one and the same place, and at the same time, as it is said to have done in a passage I have already quoted from the *Quarterly Review!* I have not the passage by me, but I allude to one in which the Reviewer speaks of beds of water-worn pebbles forming a kind of caps on the tops of certain hills, and adds, that the valleys surrounding these hills were scooped out by the same current which brought the pebbles from a higher level! I cannot, I say, suppose that a mere stream of water should be so capricious in its movements, as to lay down masses of pebbles to which it already communicated motion, and at the same time, and under the same circumstances, communicate motion to other masses of pebbles which till then were at rest! I say "under the same circumstances;" because I apprehend that the hills here spoken of are not supposed to have existed in the form of hills previous to the time when the valleys are supposed to have been scooped out. The current which was powerful enough to scoop out valleys, must, one would think, be powerful enough to carry pebbles; and if so, I cannot suppose that it would be capricious enough to exchange, for others, those to which it had already communicated motion. Neither can I suppose that one and the same current can have sufficed to carry blocks of granite in one direction, and afterwards to scoop out a valley in another direction. The current, for instance, which carried blocks from Mont Blanc to Mont Jura, in a direction from south to north, cannot have been the same as that which afterwards scooped out, in an east and west direction, the valley which now separates those mountains. Nor can the blocks which are said to have travelled some hundred miles south from Norway or Sweden into Germany, and even to the coasts of England, have been conveyed by the same currents which are thought afterwards to have scooped out the North Sea and the Baltic! I do not mean to assert that these various changes cannot have been effected by one and the same convulsion; I think it probable that most of them were so effected; but then I must regard the currents of water as only attendant circumstances, or effects, and by no means as the causes of that convulsion.

Neither am I disposed to join those who regard subterraneous heat as the cause of the convulsions. I have no doubt that fire, as well as water, has played an active part during the changes which we contemplate; but I regard the operations of both, not as causes, but as part of the effects; and the question still recurs as to what caused the fire, and what set the water in motion. We see the traces of fire in some places, and we see still more clearly the traces of running water in other places; but the traces which we see most clearly, and in all these places, are the traces of force!—of mighty, overwhelming, irresistible force!—of a force almost, or, as the Americans

would say, "all but" omnipotent. It has had about it so much of the character of omnipotence, that any resistance it has met with appears to have borne no perceptible proportion to its own power, and it would seem to have carried on its operations as through an unresisting medium. We, in some places, see mineral veins (not thicker than threads) passing through the hardest rocks to a great distance, and holding on their course in an absolutely straight undeviating line, as determinedly as veins of great thickness; and we often see that a change in the texture or hardness of the rock, occasions no change at all in the direction of the vein. It seems as if the force which projected or protruded the vein, was so much greater than any resistance offered by the hardness of the rock, that the latter might fairly be estimated at nothing. The phenomena of mineral veins show not less than those of denudation the immensity of the force which has been employed in their production.

This immense violence is particularly marked by the slips and shifts of the strata on each side of the veins, all tending to show what mighty changes have taken place "in those regions which our imagination paints as the abode of everlasting silence and rest."—"Where (says Playfair) these slips are horizontal, and exhibit great bodies of strata carried from their place, while the parts of the transferred mass remain undisturbed relatively to one another, they furnish a clear proof that this change of place has not arisen from the falling in of the roofs of caverns, as some geologists suppose. The horizontal direction, and the regularity of the movement, are incompatible with the action of such a cause as this; and, indeed, it is highly interesting to remark, in the midst of the signs of disturbance which prevail in the bowels of the earth, that there reign a certain symmetry and order which indicate the action of a force of incredible magnitude, but slow and gradual in its effects."

Another mark of violent fracture has been observed in rocks of breccia or pudding-stone. "In rocks of this kind, it sometimes happens that considerable portions are separated from one another, as if by a mathematical plane, which had cut right across all the quartzy pebbles in its way. None of the pebble is drawn out of its socket, that is, out of the cement that surrounds it, but is divided in two, with a very smooth and even fracture."

M. Saussure speaks of these blocks of pudding-stone as being divided as neatly as if they had been soft masses cut through vertically with a razor. Even the hardest pebbles, he remarks, were cut through quite as neatly as the others. Mr. Playfair describes a specimen in which "the smallest pieces of stone are cut in two as well as the largest. The consolidation and hardness of the mass are very great, and the connexion of the different fragments so perfect that it is no wonder the whole should break as one stone: but still (he adds) that the fracture should be so exactly in one plane, and without any shattering, is not a little enigmatical; if it is indeed a fracture, it must be the consequence of an immense impulse, very suddenly communicated."

I am not quite sure that the concluding words of this passage are reconcileable to the concluding words of the passage that precedes it, but both concur in giving the idea of a force which was, to the resistance, almost as infinity to nothing. But I must be permitted to extract another passage on this subject from Mr. Playfair. "Mineral veins, particularly at their intersections with one another, contain abundant marks of the most violent and repeated disturbance. Not to mention that they owe their first formation to the fracture and displacing of rocks already consolidated, it appears that they have originated at very different periods, and that the birth of each has been accompanied with convulsions which shook the foundations of the earth."

The veins called "cross courses" are of later origin than the others, and their formation was accompanied with such a force as must, in many instances, have moved the whole body of rock which constitutes the promontory of Cornwall, and probably much more, for several yards, in a horizontal direction. Sometimes, also, both the longitudinal and the cross veins are forced out of their place by a third.

What is here said of Cornwall, is the history, in some degree, of all mineral countries whatever. The great horizontal translation which have thus accompanied the formation of veins; the movement impressed on such vast bodies of rock, and the frequent renewal of these immense convulsions, are not to be explained by the mild and tranquil dominion of the watery element; they require the utmost power that is known any where to exist. What then is this "utmost power?" What is the mighty force, which seems to wield sea and land at its pleasure? what is its nature, and where is it situated? Has it its home within the earth itself, or, like the imagined machinery of Archimedes, does it derive its irresistible power from having a resting-place elsewhere? To which of those phenomena with which we are familiar are its effects analogous? The volcano, the earthquake, the expansive power of heat and steam, have all been examined, and have been found wanting: great and terrific as their effects sometimes are, they are all too limited in their operations; and I have long been satisfied that we have no evidence of any thing in the internal consitution of the earth capable of producing that universality of convulsive changes which it is the business of the geologist to account for. I accordingly put out of my consideration all we have heard about central hollows, central abysses, and central fires. I am satisfied that, for the causes of change, we must look not inwards, but outwards; and in seeking for a solution of the problem, I wish always to regard the earth as a planet, as a member of the solar system.

Some one, I think Mr. Playfair, has said, when speaking of the elevation of Mont Blanc, that the force which raised it was almost equal to that which projected the planets in their orbits. I am aware that Mr. Playfair, and most other astronomers, are of opinion that, "in the celestial motions, no room is left for the introduction of disorder,"—that "no irregularity or disturbance arising from the mutual action of the planets is permitted to increase beyond certain limits;" but I wish to inquire what those limits are,—whether they are such as to preclude the possibility of geology borrowing from its sister science a little of that mighty force which she possesses in such abundance, and whether a little might not be spared from her ample stores, without endangering the stability of the system; but this inquiry must not be entered upon at the close of a letter.

July, 1826.

IMPORTANT IMPROVEMENT IN CARRIAGES.

On Monday se'nnight, an experiment was made, on the Darlington railway, with a carriage upon a new principle, which appears likely to be a great improvement on that mode of conveyance. One of the old waggons in good order was chosen for the comparison, and they started together from the coal shoots, at a short distance below the Brusselton-plain. The new waggon quickly outstripped the other, and soon ran it out of sight. It was observed to be at the third-quarter mile post as soon as the old waggon had reached the second. The descent was very considerable, and the time very short; the difference of friction, to which cause alone the retardation of a quarter of a mile in so short a time is to be attributed, must have been enormous. The new waggon continued its way till it was observed to run over a quarter of a mile in thirty seconds, which gives a speed of thirty miles an hour. It now arrived at what is said to be a level of two miles, when the wind being strong on the fore-quarter, the speed gradually diminished. None of the old waggons will run at all, on this part of the road, without assistance; the new one, however, nearly cleared it, and would, no doubt, have gone quite over, if the wind had not been so unfavourable. It was curious to see how imperceptibly it came to rest; and so slight was the draught, that a stronger puff of wind wafted it a few yards back again. It was now pushed over the remainder of the level, and again got into motion. It then arrived at a long and sharp curve, and the crease was observed to bite hard upon the rail; still the friction was so small that it kept on its way till it arrived at a straight part, where it again got into speed, and ran on to the depots at Darlington. What is perhaps still more surprising, it is likely to prove a cheaper carriage, in proportion to the weight of goods conveyed, as it is calculated to carry four tons. An experiment made a few days before was equally satisfactory.

Literature.

THE BETROTHED,
OR THE BLOOD-STAINED DAGGER.

A Romance, in Twelve Chapters, by W. R. of Manchester.

[*Continued from No.* 322, *page* 59.]

CHAPTER III.

"Far in a wild, unknown to public view,
From youth to age a rev'rend hermit grew;
The moss his bed, the cave his humble cell;
His food the fruits, his drink the crystal well."

Parnell.

The same evening, immediately before the arrival of Reginald and Leonora, two strangers, richly attired, rode up to the hermitage, and requested the hermit to provide them with a repast for themselves, and provender for their horses, whose appearance indicated that they had travelled far, and were much wearied. He placed before them his scanty fare, and whilst they were partaking of it they made strict inquiries respecting the travellers who had recently journeyed that way, particularly on that day; and if he had seen two, describing Reginald and Leonora. "I observed, (replied the hermit) several hours before your arrival, two travellers pass this way, whose dress and appearance exactly corresponds with the description you give; but before this time they must have reached their destination for the evening." At this information they appeared much chagrined, and expressed their determination to proceed; but upon the hermit representing to them the futility of attempting to overtake the persons of whom they had made such strict inquiries, together with the jaded appearance of their steeds, they resolved, at his request, to rest, at least till sunrise, before they pursued their journey.

After they had retired to rest, the hermit overheard them in deep and earnest discourse, from which he learned that they intended the assassination of some individual of whom they were in pursuit; he also heard them pronounce, with great vehemence, the name of Leonora, and *the blood-stained dagger*. So soon as Reginald and the lady appeared, the hermit immediately recognised in them the persons whom the two strangers were pursuing; and his opinion was confirmed by hearing Reginald address the lady by the name of Leonora.

The hermit resolved upon frustrating the evil designs of the strangers, and for that purpose fastened down a private spring in the door of Reginald's apartment, which entirely precluded the possibility of ingress or egress without his knowledge: he then composed his limbs upon a mossy bed, and fell soundly asleep.

It was one of those mornings of which Italy has no compeers for exquisiteness and beauty; the sun was rising in cloudless majesty, and the feathered songsters poured forth their most delicious harmony. The hermit was seen on his bended knees, with a small golden crucifix in his hand, in deep supplication to the Almighty Dispenser of blessings; and the fervour and energy with which he pursued his devotion prevented him from observing that the two strangers had risen, and were listening to his prayers.

He had told his rosary and began his orison long before the two strangers had left their pallets, and was returning thanks to the Almighty who had ordained that he should be instrumental in preserving two fellow-creatures, and was thus proceeding:—"I thank thee, Lord, that thou hast placed me in such a situation as to enable me to preserve the lives of two fellow-mortals; I pray thee, of thy infinite mercy and goodness, thwart the designs of these wicked men."—"Ha! (cried one of the strangers, stepping forward,) thus frustrated, and by an old graybeard! now, by Heaven, thou shalt not escape the vengeance of my arm!" and he was about to put his threat into execution, when his companion exclaimed, "Hold, Rodolph! (at the same time arresting his arm,) add not another crime to your already lengthened and black catalogue, I conjure you; spare your vengeance, and that one more crime, until we meet with the victim whom you have sworn to exterminate."—"Does not the old dotard say, in my very face, (returned he, with energetic desperation,) that he has facilitated their escape, and glories in the action?"—"No! (answered his companion,) let not Heaven have to register this crime against you, or I shall retract mine oath."—"Retract thine oath! (exclaimed Rodolph, with a sneer,) I will sheathe my weapon, and go forth alone: from this hour I will hold no communion with mankind, until I have glutted my revenge," his countenance at the same time assuming an unutterable and demoniac aspect. "Nay, (answered his companion) we have sworn conjointly to execute this undertaking, and I will abide by the issue."—"Be it so," said Rodolph, somewhat calmed, but doggedly.—"Our steeds, old man, and remember, if thou hast deceived me, there will come a time, when no one can arrest my arm."—"None but Heaven," calmly answered the hermit, and then brought their steeds in silence. They mounted and departed, without even thanking the hospitable man for the entertainment they had received.

The hermit then proceeded to awaken Reginald and Leonora; he cautiously touched the secret spring, and the door opened gently: they were both asleep, and he gazed for some time intently upon the countenance of each, alternately looking upon one and then the other; at length he broke out into the following soliloquy:—"Death! thou inscrutable and all-powerful agent, what art thou? what is the barrier that divides thee from life? One blow from that assassin's dagger would have given thee another victim; and the blood still reeking on the dagger"—Here Leonora awoke, and hearing the latter part of the hermit's unfinished soliloquy, uttered an involuntary shriek, at which Reginald started up, and seized his pistol, which he had placed at his side, wondering what could have given her alarm, seeing no one but the hermit in the apartment. "Good morrow to you, fair Lady; and how fares it with you?" said the hermit, addressing the startled Reginald.—"In good truth it fares but ill with me, (answered he;) I started from a dream, in which I thought an assassin bent over Leonora, and was about to plunge his dagger to her heart, and her screams awoke me."—"Alas! my children, (replied the hermit,) how near were your dreams being realised!" he then detailed the account of his adventure with the strangers, adding, "and when the assassin was brandishing his dagger over my head, I observed it was already stained with blood." Leonora, who had listened to his narrative with an intense interest, and painful suspense, here gave a faint and stifled shriek; but endeavouring to recollect herself, apologized, by saying, "the description so worked upon her feelings that they were unable to bear it."

The lady Leonora had such an intense and quick sensitiveness, that the most distant allusion to *the blood-stained dagger* caused her to tremble with agony; her whole frame became convulsively agitated, and a thrilling tremor ran through her veins.

After having broken their fast they prepared for their departure, the hermit exhorting them to take a contrary direction from what their deadly enemies had pursued.

CHAPTER IV.

"Canst thou not minister to a mind deceased;
Pluck from the memory a rooted sorrow;
Raze out the written troubles of the brain;
And, with some sweet oblivious antidote,
Cleanse the foul bosom of that perilous stuff
Which weighs upon the heart?"—*Shakspeare.*

Previous to Reginald's departure from the hermitage, he had determined to change his route, and take a more circuitous direction, to avoid his adversaries; nevertheless, he intended travelling to Florence before he made any permanent stay. In furtherance of this design, he resolved upon visiting Como, and remaining there a few days, then to proceed immediately on the journey, to his original destination.

After the description the hermit had given of the two strangers, there did not exist in the mind of Reginald a doubt but they were the same he had met upon the pass; and it was evident that they had a design upon his life, but for what purpose he was totally ignorant. He was not aware of having injured them in the slightest degree; they were to him strangers, for he had not the least recollection of ever having seen them before; nevertheless, it was plain they sought his life, with an avidity and diligence that he might not be able at all times to elude. Their apparent insatiate thirst for his blood would never be appeased but with the attainment of their object, and the idea that, during the remaining portion of his existence, he should live in perpetual fear of assassination, was in the highest degree painful, for they appeared to pursue their sanguinary purpose with determination and perseverance: revenge appeared to be their object, and he revolved in his mind all possible causes for it, but none seemed plausible enough; they appeared to be bent upon murder—cold-blooded murder—and how to counteract their designs he could not conjecture.

Reginald had observed the agony the lady Leonora endured at the bare mention of their names, and he at last imagined she must be acquainted with them. He communicated his design of visting Como to the hermit, who applauded it, and prayed for his ultimate success. After the holy man had given them a benison, they departed, taking a diametrically opposite direction from what the strangers had pursued.

Reginald, from an idea he had conceived that Leonora was not totally unacquainted with the strangers, began to question her respecting them; but she studiously avoided giving him a direct answer. "I have observed (said Reginald, rather ironically) that the recurrence of our conversation to the strangers creates a considerable degree of uneasiness in you; and a kind of involuntary shuddering seizes your whole frame at the mention of one of their names, Rodolph."—"I pray you, Reginald, (said Leonora,) question me no further; I will answer all your inquiries when we arrive at Como: but why do you question me?"—"Because (answered he, sternly) there appears to be an intimacy existing between you and this Rodolph, which ....."—"Cease, my Lord, to tantalize me thus; I know you would not willingly that I should be pained, and I will tell you all when we arrive at Como; indeed, I will," answered she.—"Well, be it so, my love!" said Reginald, abruptly.

They rode on in silence a considerable way, during which time Reginald contemplated her beautiful features. She was above the middle stature, noble and graceful; her rosy cheeks were dimpled with winning smiles, which played around her beauteous lips; and the clusters of raven ringlets, which waved around her neck, shone in the sun's bright beams, and only served to show the pure and spotless white of her bosom to greater perfection; a rosary hung from her neck, to which was appended a small golden cross, which denoted her to be of the Popish persuasion; her jet-black eyes sparkled with a dazzling brilliance, and her whole soul was reflected in their passionate glances. At times, her brow seemed glowing with immoderate joy, and presently it lowered again, and her aspect became pensive and melancholy. She was dressed in a green silk habit, richly embroidered, and studded with golden stars, and it floated in ample folds, as her cream-coloured jennet bounded along proudly, seemingly conscious of the worth of its beautiful rider. On her head was carelessly placed a hat of the same colour as her habit, around which was plaited a golden band, terminating with a tassel of the same costly material, and which gave her a wild and beautifully picturesque appearance.

She had now assumed a more joyous appearance; mirth seemed sparkling in her eyes, and her whole countenance beamed with an unwonted hilarity. Reginald, taking advantage of her mirthful mood, rallied her upon her late serious and wo-begone appearance, and then complimented her upon the pleasing change which had taken place in her whole demeanour. "Alas, my Lord, (she answered,) the rose may blow in all its native majesty and beauty in the morning, but ere evening a storm may have rent it from its native stem, or some rude hand may have plucked it to adorn a bosom, whose beauty may be almost as perishable and short-lived as itself."—"My fair moralizer! (said Reginald,) I cry you mercy: I do not understand your philosophy as applicable to your joy or grief."—"Happiness (said she) is, at the best, but a transient vision,—like the bubble on the running stream, as empty and as easily broken."—"Still you philosophize, without giving any decisive answer to my question," said Reginald.—"I will answer that anon, (rejoined she;) my brow, although it may be glowing with apparent happiness, hides that which ever cankers as it incessantly burns."—"I can, at least I will endeavour, to alleviate that silent grief," said Reginald.—"It will admit of no alleviation, (answered she,) unless you can erase the traces of memory: no, it is indelibly engraven there; nor time, nor chance, nor change, can ever eradicate it. Oh! Reginald, (added she, with energy and emotion,) you have touched a chord within my bosom which vibrates with the slightest impulse, but jars most harshly when touched by you." Reginald saw that he had unconsciously awakened thoughts which her hilarity had in a temporary degree overcome. He endeavoured to divert her attention from her apparently soul-consuming thoughts; but his attempts were ineffectual, until a circumstance occurred which completely turned the current of her thoughts.

The sky, which had hitherto worn an aspect the most fascinating, began to darken, and the gathering gloom, together with the screams of the wild birds as they flew to their shelter, denoted that a storm of no ordinary kind was about to burst. Our travellers were at a great distance from any habitation, and they had concluded they must bide "the pelting of the pitiless storm," except from what shelter the branches and foliage of a huge tree could afford them. Here they took their stand, when Reginald discovered, at a little distance, the mouth of a cavern, which promising better protection, they thither directed their course. Scarce had they reached it, before the tree under which they had taken shelter was rent into a thousand splinters by the lightning, scattering its foliage and riven branches to a considerable distance. The storm continuing with unabated fury, Reginald was induced to explore and examine the cavern in which they had taken shelter; the mouth of it was nearly covered with brushwood and shrubs, which not only partially hid it from the eye of the traveller, but also excluded in a great measure the light; so that the farthest part of it would have been completely dark, had not a small chink or aperture at that part of it admitted light sufficient to show, though indistinctly, the height and dimensions of the cavern. As he advanced, it became wider and more spacious, and in the side of it there appeared to be a recess, which might lead to other caverns; but it being dark, Reginald did not think it prudent to explore. The cavern he was in appeared to be free from any noxious damp or vapour; and there were traces of persons having been there before, from a bed of dried leaves, which might have belonged to some horde of wandering itinerants, with which this country is infested.

[To be continued.]

Poetry.

LYRA GERMANICA,
OR SPECIMEN OF THE GERMAN LYRIC POETS.

No. VII.

CANADIAN DEATH SONG.

[FROM SCHILLER.]

There he sits upon his mat,
There he sits upright,
All erect, as once he sat
Whilst he saw the light.

But where is the powerful gripe?
Where the breath so strong,
Which so lately smoaked the pipe
Midst the festive throng?

Where the eye, which, eagle bright,
As the rein-deer flew,
Tracked o'er waving grass his flight,
O'er the morning dew?

Where those limbs, so swift to dart
O'er the frozen snow,
When he chased the lusty hart,
Or the mountain roe?

Arms so vigorous, which alone
His bow of terror sprang?
See! the life is from them flown!
See! they powerless hang!

Well for him! He joyful strays,
Where it no more snows;
Where midst lovely fields the maize
All uncultured grows;

Where with birds the thickets teem,
And with game the brake;
Silvery fishes fill each stream,
Sport in every lake.

To that happier land he speeds,
Leaves us here forlorn,
To rehearse his noble deeds,
O'er his grave to mourn.

Bring the last gifts to the brave!
Raise the funeral song!
All be buried in his grave,
And his joy prolong!

'Neath his head the hatchet lay,
Seldom known to spare,
And to cheer his dreary way,
Haunches of the bear.

Bring the nicely sharpened knife,
Which with dextrous blow,
Whilst he sternly yielded life,
Scalped the prostrate foe;

Colours, too, that brightly gleam,
Place within his hand,
That with glory he may beam
In the shadowy land.

THE PHILOSOPHY OF MAN.

The Poets, they say, (and deny it who can,)
That once on a time, in a sacred divan,
Minerva the Arts with the Sciences join'd,
And ask'd them to tell her how man was defin'd?

First Grammar, believed him a noun undeclin'd,
So curious his body so searchless his mind;
Or a short interjection of weeping and wo,
His birth is an—ah! and his death is an—oh!

Next Logic defin'd him an enthymeme brief,
Where one thing is wanting, that sometimes the chief;
His birth, antecedent, begins life's short tale,
His death, as the consequent, never can fail.

Dame Rhetoric next at the board took her station,
And gave her opinion, he was an oration;
Exordium his birth, and narration his life,
Peroration his exit, the end of all strife.

Arithmetic thought him a rule in reduction,
So wasting his body,—his spirit a fluction,
A drop in duration, too little to sever
From the ocean that flows on for ever and ever.

Geometry deemed him a spherical figure,
Poor men are small circles, and rich ones the bigger;
But still her opinion decidedly ran,
That he ends in the point where at first he began.

Astronomy said, he resembles a moon,
A brightness all spotted and changing so soon;
Cold, fickle, unequal, now cloudy, then bright,
An emblem of man in her waning and light.

Geography view'd him as misery's map,
Whether hoary with age, or a babe on the lap;
Full of deserts, volcanoes, rocks, whirlpools, and bogs;
His centre all fire, and his surface all fogs.

Music thought him a drum, because hollow i'th middle,
If noisy a trumpet, when foppish a fiddle;
If vainly loquacious, a cymbal would suit,
When thankful a harp, and when loving a lute.

Horticulture described him a delicate flow'r,
That blooms but a season and dies in an hour;
She said, if another brief emblem might pass,
In his youth he was green, in his age wither'd, grass.

Geology spoke, and she thought him *red earth*,
A bit of warm clay, when a babe he had birth;
His food, physic, raiment, earth wholly supplies,
And 'tis dust turned to dust when he finally dies.

Pneumatics defin'd him, a shadow of morn,
A vapour ignited the moment 'tis born;
The shade of a shadow, that passeth away;
The dream of a vision, the breath of a day.

Typography thought him a common-place book,
And said his contents were by many mistook;
But whether by wisdom or vanity penn'd,
His birth is a preface, a *finis* his end.

Morality deem'd him an ocean of evil,
A Pandora's box, yea, a limb of the devil;
A den, where the vipers of wickedness breed,
Immoral in practice, a libel in creed.

Religion spoke last, and all sweet was her sentence;
She thought him half angel, when brought to repentance;
If faith in Messiah, and love spread its leaven
Thro' his nature renew'd, it was *miniature Heaven*.

A PUZZLE FOR SHOEMAKERS.

Mr. Mackay, of No. 6, Hurst-street, has favoured us with a paper pattern, explaining how the upper-leather, quarter, strap, and lining, of a shoe, may be constructed all in one piece, without a single seam. Whether it is a new invention or not Mr. M. does not take upon himself to say; but, in our opinion, it is a most ingenious contrivance.

Laconic Dunning Letter.—The following copy of a dunning letter may serve as a model in that line:—"Sir, if you will favour me with the amount of my bill, you will oblige *me*: if not, I must oblige *you*."

Canadian Tobacconist's Sign.—Mr. Hall, in his Travels in Canada, gives the following inscription of a genuine sign exhibiting three figures:—

"We three are engaged in one cause,—
I snuffs, I smokes, and I chaws."

Athanasian Creed.—Parson Paten was so much averse to the Athanasian Creed that he never would read it. Archbishop Secker having been informed of his recusancy, sent the Archdeacon to ask him his reason: "I do not believe it," said the priest. "But your Metropolitan does," replied the Archdeacon. "It may be so," replied Mr. Paten, "and he can well afford it,—he believes at the rate of seven thousand pounds a year, and I only at that of fifty pounds."

The Beauties of Chess.

"*Ludimus effigiem belli.*"—VIDA.

In our two last publications the chess board was accidentally reversed, so that the right hand corner square instead of being white was black. It is, however, a matter of little importance, as the letters, figures, and the pieces are all correctly indicated.

TO THE EDITOR.

SIR,—I send you the following explanation of the chess problem in your last *Kaleidoscope*, and another ingenious one by the celebrated Modenese, which I think will puzzle some of your correspondents.

Having heard repeatedly of the powerful attack of the Muzio Gambit, and not being able to find it in any work on the subject I have met with, I should imagine most of your readers would feel obliged by your communicating it through the medium of your entertaining miscellany.

Pleasant-street, Sept. 13. G. C.

WHITE.	BLACK.
1 Knight.....C—6	1 King.....E—8
2 Queen .....A—8	2 Knt.....A—8
3 Castle .....A—8	3 King .....D—7
4 Castle .....A—7	4 King.....E—8
5 Knight ...D—6	5 King.....F—8
6 Castle .....F—7 MATE.	

[NO. CVIX.]

Black.

WHITE.

The white to move, and to give checkmate in four moves.

THE KNIGHT'S MOVE AT CHESS.

NO. IV.

On the division of the board adopted in these numbers, together with the reasons for making circuits, and the advantages of them.

The reason for the present division of the board is, that by taking away the sixteen squares in the centre, all the sides are left similar to one another, each containing the same number of squares. This will be easily seen by referring to the diagram to No. 1, in which the blank squares will show the truth of the observation. Were any other number of squares taken out of the centre, it would be impossible to proceed, either because the sides of the board would be dissimilar, as would be the case were the nine or the twenty-five squares nearest the centre taken away, or because the knight would not be able to move round them, as would be the case were the thirty-six taken out of the centre. The peculiar advantage of the present plan is, that it allows the knight just, and only just, room to move round in any direction. Since the chess-board is itself a regular figure, it follows, that to cover every square, a number of regular figures must be made use of, in order to effect it; and to form these figures, the board must be divided in a regular manner, and a little reflexion will show that the present is the simplest, and therefore the best method to adopt. The circle and rhombus being the only regular figures which

the knight can perform in the sixteen squares, must, of course, be made use of; and the corner which it has been shown must be left out, will be of use in connecting the circuits; but this will be shown hereafter. It is true that there are several ways of covering these sixteen squares, but as they depend more upon contrivance and personal skill than upon regular system, they will not be so generally intelligible or useful. It is hoped sufficient has been said to show the advantage of the present division of the board, and the circuits come next under consideration.

Having shown the advantage of the present division of the board, it remains only to demonstrate that the circuits are the only regular figures into which the remaining forty-eight squares can be divided. There is the same reason for dividing these into regular figures as existed for dividing the sixteen. It will here be necessary to examine very closely the nature of the knight's move. He proceeds two squares in one direction, and one in the other, that is, two squares backward or forward, and one sideways.—Now since the side of the chess-board consists of eight squares, it is plain, that were the two squares over which the piece passes always taken in the same direction, that is, always forwards, for instance, it could never move from one end of any line to the other; that is, placing the knight on A 1, he never could arrive at A 8 or B 8. He will arrive at B 7, but never at B 8; for the march will be A 1, B 3, A 5, B 7. Arrived here, it becomes necessary to change the direction of the two squares. From the division of the board, it is impossible to return, except by the same route, which would destroy the intention. The two squares must now be taken sideways, till the piece reaches H 8. Here the direction is again necessarily changed till the knight arrives at G 2; and here again another change takes place until it arrives at C 2; hence the formation of circuits becomes a matter of compulsion, according to the present division of the board. But setting this division aside for a moment, is it not most reasonable, that, since the power of the knight is more limited round the edges of the board than in any other part, these exterior squares should have a very prominent place in the arrangement of the plan, and be amongst the first to be covered in a tour of the board; or, at least, should not the plan be so arranged as to make it impossible to leave any of them out? Undoubtedly so,—and the circuits possess the advantage, not only of containing all the exterior squares, but also of making it impossible to omit one of them, if only a moderate share of attention be given to their arrangement and combination. This is also another argument in favour of the present division of the board. Having thus endeavoured to show the reasons and advantages of the present divisions and subdivisions of the board, it now only remains to show the method of performing the general tour, which will be matter for the next number. Before closing the subject, it perhaps may be observed, that when the division of the board is once understood, it will be almost impossible to go wrong in the formation of any particular circuit, since it is only necessary never to move from one square of the line nearest the centre to another in the same line, as from F 2 to G 4. W. C.

METEOROLOGICAL DIARY.

[From the Liverpool Courier.]

	Barometer, at noon.	Extreme during Night.		Thermometer 8 morning	Extreme heat during Day.		State of the Wind at noon.	Remarks at noon.
Sept.								
6	29 29	47½	0	54	56	0	E.N.E.	Rain.
7	29 35	48½	0	56	60½	0	N.W.	Stormy.
8	29 46	48	0	57½	62	0	W.N.W.	Cloudy.
9	29 53	54	0	59	64	0	W.S.W.	Fair.
10	29 76	53	0	56	61	0	N.E.	Cloudy.
11	29 98	53½	0	56	65	0	W.	Fair.
12	29 95	52	0	58	56½	0	W.S.W.	Cloudy.

6th,—The mercury of the barometer fell, from 8, a. m., to 9, p. m., 75 parts of an inch, thereby denoting heavy storms of wind and rain.

7th,—Very heavy fall of rain from 11, a. m., which continued throughout the night, accompanied with strong winds.

8th,—Eight, a. m., rain.

9th,—Seven, p. m., thunder storm.

CAPTAIN SYMMES'S THEORY—THE GLOBE HOLLOW WITHIN, AND OPEN AT THE POLES—PROJECTED EXPEDITION TO THE SOUTH POLE.

In the last *Mercury*, part only of the following article appeared, as the two extracts from the American journals were omitted. Whatever we in this country may think of the theory of Captain Symmes, that gentleman seems to be held in America in more consideration at present than he was when first he broached his doctrine. The English journals have taken no notice whatever of this subject; but when we find such as men Dr. Mitchell countenancing Mr. Symmes, we may be assured that wild as the speculations of the latter may be, there must be some redeeming feature about them. Our valuable and intelligent correspondent, whose communication commences our present publication, calls his treatise a Bold Guess on Geology:—we long to hear how he will designate the *guess* of Captain Symmes.—*Edit. Kal.*

We happened, not very long ago, to have a most whimsical dream, which afforded us much amusement at the time. We thought we were situated, no matter where or how, but in such a position that we had a distinct view of the north and the south poles of the earth at once. On the apex of the former, on a throne of ice, sat a most ancient and fantastical-looking old lady, with spectacles on her nose, and a hearing-trumpet in her withered hand. The south pole was graced by the presence of an old man, the very counterpart of the antique dame. It was not to be wondered at, we thought, that they should require hearing-trumpets, on account of the deafness which sitting on a throne of ice would naturally occasion; but our readers will not be surprised that these auricular aids were necessary, when they learn how this antipodean couple communicated together. The axis upon which the earth whirls about was, we thought, a hollow metal tube, through which the guardians of the two hemispheres conversed together. When one spoke, the listener applied the trumpet at the other end of the pipe, and *vice versa*. What the subject of their conversation might be we could not gather. It seemed, however, to be any thing but lively; and the frequent shaking of heads and shrugging of shoulders led us to conclude that the gloomy state of affairs, in both the hemispheres over which they presided, was the topic of conversation. Nothing surprises us in our dreams, or we should have marvelled that this ancient couple could thus manage to keep up a conversation through a tube eight thousand miles in length.

As our dreams are only the disjointed recollections of our waking ideas, we "cast round," as the saying is, to discover whence could possibly have originated as whimsical a conceit as was ever whispered into the ear of mortal by the fairy queen, who sits

"Athwart men's noses as they lie asleep."

After a little cogitation on the subject, it suddenly popped into our head that we had been reading something in the American papers on the subject of a most extravagant theory of the earth, which has been recently espoused by a certain Captain Symmes and his followers.

We say recently, but we find, on reference to the old series of the *Kaleidoscope*, that we noticed the Captain's reveries as far back as October 13, 1818. At that time the writer who communicated the outline of the scheme, and who dated from St. Louis, described the author of the hypothesis as an insane speculator. By dint of perseverance, however, or because this is the era of projectors, the American journalists begin to treat Mr. Symmes with much more deference and respect: it is even said that a mathematician of great eminence has attended his lectures, and approves of his theory.

But it is high time to tell those of our readers who are unacquainted with the matter, what this theory is. We believe, then, that its leading *feature* is, that the globe is hollow within, and open at both poles; the interior consisting of concentric rings.*

The following paragraph on this subject, copied from a recent number of the *New York National Advocate*, or the *Statesman*, we do not recollect which of the two, contains the latest intelligence we have met with on the subject:—

"*Captain Symmes at Boston.*—The Captain, after lecturing a few evenings at Providence, made his debut in the Literary Emporium, and lectured to a large and respectable audience in the hall of the Exchange on Thursday evening. The American traveller, in speaking of his lecture, says, 'If we do not declare ourselves to be converts to the novel doctrines of Captain Symmes, we may at least be permitted to state, that we admire his zeal, depth of research, and honest promulgation of doctrines which are contrary to the received opinions of our philosophers and schoolmen. We are pleased with the modesty with which this gentleman expounds to his audience the different parts of his subject. Instead of being carried away by the idle vagaries of an enthusiastic visionary, the mind is occupied with a plain unvarnished, but exceedingly interesting discourse; it is borne easily and smoothly along, without being permitted to stumble upon a single obstacle, until it is fairly landed in the centre of the 'hollow globe.' And if we cannot assent to all his positions, we confess our inability to account for many of his facts and statements upon the generally-received notions of science and philosophy. In saying this, however, we are aware that we repeat only what has been said for Captain S. by several learned and ingenious writers, who once treated his favourite theory as the offspring of an idle and visionary brain, and who looked upon the promulgator as any thing but a man *habens sanam mentem in sano corpore.*"

The American journalists do not afford us much information respecting Captain Symmes's theory; we are, however, assured that "it is simple, grand, and in accordance with sound philosophy;" that so far from being opposed to the recognised Newtonian system, it confirms it, and extends its application. One correspondent of the *New York Daily Advertiser* goes so far as to express his firm belief that Captain Symmes has fully succeeded in demonstrating that the received theory of the *figure* of the earth cannot be true.

It seems that the Captain's immediate object is to obtain such pecuniary assistance as will enable him to fit out two vessels for an expedition towards the south pole, where there is certainly much more scope for discovery than in the northern hemisphere.

There appears to be some prospect that the project will be carried into execution during the present year, by the contributions of persons who do not expect that a discovery of the polar apertures will be the result of the voyage, but who anticipate other discoveries of more importance to mankind.

Independent of Captain Symmes's whimsical notions respecting the polar apertures, or the concentric rings in the interior of our globe, he may entertain very rational and well-deduced opinions on other points connected with the object of his expedition; and it is to put the latter, rather than the former, to the test that the voyage will in all probability be undertaken; and Captain Symmes may eventually benefit the cause of science and extend the commerce of the world, although in some respects he may be as much a visionary in geology or philosophy as Brothers or Johanna Southcotte were in religion.

The alchymists of old, although they were in pursuit of an unattainable object, and one, too, which if attained, would be worthless, made many most important scientific discoveries in the course of their experiments. In like manner, the American enthusiast, although he may fail to discover the polar apertures in which he firmly believes, may make some discoveries of infinitely greater importance;—we say, of greater importance, because we are of opinion that if our globe be open or closed at the poles, it is a matter of no sort of consequence to us, as we can never get at them, either to prove the fact, or to benefit by the phenomenon. ☞

* The notion of the polar apertures may be perfectly original; but the hollow interior and the concentric rings remind us of an opinion entertained by the celebrated Dr. Halley, who thought that the interior of the earth might consist of a separate globe, detached as the kernel of a nut is from the shell; and he thought it probable, that as the motion of the shell would be more rapid than that of the kernel, that circumstance might cause the variation of the magnetic needle. —*Edits. Mercury.*

NEW THEORY OF THE EARTH.

To the Editor of the New York Daily Advertiser.

SIR,—I have lately attended, in Philadelphia, a course of lectures by Mr. Reynolds, on Capt. Symmes's theory of the earth. This subject had excited only the ridicule of the public; so that the good people of Philadelphia were

somewhat surprised to find that an eminent mathematician had taken a considerable interest in the lectures; and that the city members of the legislature, before whom Mr. Reynolds had lectured, were so pleased as to furnish him with letters in which his theory was called highly ingenious and plausible. As our members are sensible and cautious men, this excited considerable speculation; and the introductory lecture was attended by great numbers.

A considerable class attended the whole course, which was the most interesting that I have ever heard. A great number of curious facts, related by voyagers to the arctic regions; many unaccountable traits in natural history; many new astronomical speculations; and some simple and elevating arguments from natural religion, were brought in support of the theory, that the earth is hollow, and open at the poles.

Mr. Reynolds's temper and tone are earnest, but modest and philosophical. He did not state his theory, and force his facts in support of it, but related a series of observations, and made his conclusions only so far as *they* warrant. He afterwards introduced the theory as an *hypothesis* that would correct all these appearances, and would explain many phenomena hitherto inexplicable. Astronomers have found it impossible to account for some appearances in the objects of their science, without supposing that nature operated in other parts of the solar system by laws essentially different from those which have fallen under our observation.

It has been said that this theory stands in opposition to the Newtonian system of philosophy. This is far from being true; it confirms it, and extends its application.

That Mr. Reynolds had succeeded in making it appear that his theory is probable, I do not pretend to say. I should think he *has*; but my knowledge of natural philosophy is so limited, that I am aware that objections may exist which I cannot anticipate. But that he has proved that the commonly-received theory of the figure of the earth *cannot possibly be true*, I do believe.

His object is, to excite so much curiosity on the subject as may give rise to a voyage of discovery; and appears to be limited to showing that this is very desirable. In pursuance of this object he will soon visit New York.

The theory may be entirely erroneous; but it is so *simple*, and so grand, so much in accordance with the principles of sound philosophy, and is urged with so much moderation, that I hope the citizens of New York will *listen* before they *laugh*.

A PHILADELPHIAN.

VOYAGE OF DISCOVERY.

Mr. Reynolds, who came from the west as a coadjutor and poineer of Captain Symmes, and who has given lectures explanatory of Symmes's theory, at New York and Philadelphia, is now in Washington. We have understood that the connexion that formerly existed between him and Captain Symmes has been formally dissolved. The annexed extract from the *Intelligencer* is a brief exposition of the nature and objects of Mr. Reynolds's discourses.—*Boston Courier.*

"The subjects of his lectures are the nature of the polar regions, particularly those of the south pole, of which but little is known, and of an exploration of them, with a view to the extension of scientific knowledge, and the augmentation of the sources of commercial enterprise and wealth. His immediate object is to obtain such aid as, in addition to the resources already possessed by himself and his coadjutors, will enable them to complete a moderate outfit for a voyage of discovery to the antarctic seas. His enterprise has, we understand, received much encouragement amongst our practical calculating countrymen of the east—not as connected with the theory of Capt. Symmes, which, in some of its parts, whether true or false, can never be tested—but as an enterprise, having for its object discoveries in the polar cosmogony, the interests of science, and of industrious pursuit, of which the whale and seal fisheries, &c. constitute a part.

"The expedition is designed to consist of two vessels, one 240, the other 100 tons. The destination is south, where, it is believed, the field of discovery remains still immense, half a hemisphere being unexplored.

"It is proposed to select a crew exclusively from seamen who have been long accustomed to the whaling and sealing business, and a sailing captain of long experience and practical knowledge in navigating the polar seas.

"The vessels are to be manned by nearly double the number of men necessary on ordinary occasions. The whole to be provisioned for at least two years. The expedition is intended to set sail early in the course of the coming winter, and to be accompanied by a corps of scientific men. The object of the expedition is immediately connected with the augmentation and diffusion of knowledge, the improvement of the condition of society, and the extension of the sources of commercial wealth and prosperity. Inquiries properly conducted, concerning the south polar regions, may justly be considered as presenting a more extensive field for scientific investigations, connected with commercial enterprise, than any other part of the globe.

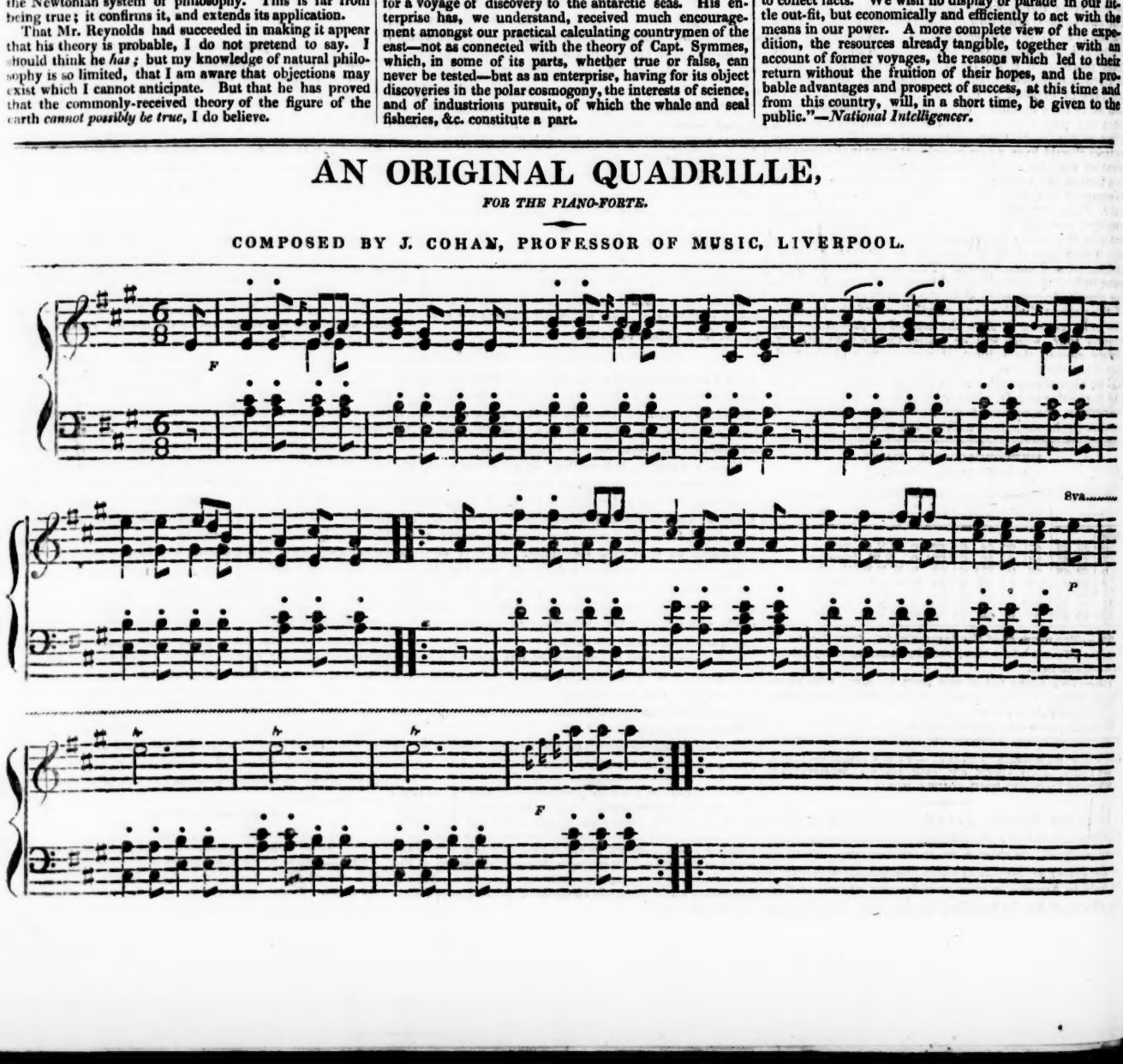
"This undertaking has not been premature, nor without counting the cost. We have received the counsel, advice, and assurance of a friendly co-operation of names dear to science and to our country; not for the sake of any definite theory, but for discovery on the broad and liberal principles of science.

"It is useless to speculate on probable results; we go to collect facts. We wish no display or parade in our little out-fit, but economically and efficiently to act with the means in our power. A more complete view of the expedition, the resources already tangible, together with an account of former voyages, the reasons which led to their return without the fruition of their hopes, and the probable advantages and prospect of success, at this time and from this country, will, in a short time, be given to the public."—*National Intelligencer.*

AN ORIGINAL QUADRILLE,

FOR THE PIANO-FORTE.

COMPOSED BY J. COHAN, PROFESSOR OF MUSIC, LIVERPOOL.



The Housewife.

"Housekeeping and husbandry, if it be good,
Must love one another as cousins in blood:
The wife, too, must husband as well as the man,
Or farewell thy husbandry, do what thou can."

BOILED GRAIN.

[*From the Examiner.*]

In anticipation of the dearness and scarcity which a deficient harvest must produce, we think it may be useful to give the subjoined statement respecting the advantages of boiled grain in preference to bread. It is from a little work, published some years ago, entitled *Practical Economy*; the remarks appear to us to be grounded on reason and experience:

"*Boiled Grain.*—Simple boiling precludes all adulteration, is an operation less laborious than artificial baking, and a mode of cookery the most wholesome. Were wheat used as a part of diet, immediately after being deprived of its external husk, either by being passed through a mill, or by the method formerly in universal use in this country, of beating it in a morter with a wooden pestle, it is evident that all the labour of grinding, all the diminution of quantity caused by separating the bran, all the expenses of carrying it to the oven, and all the profits belonging to the baker, would be saved; and, what is of more consequence, all the tricks played during the process of reducing the corn into flour (for it is in this stage of the process that heterogeneous and too frequently unwholesome substances are mingled with it) would be avoided. So strong, however, are the prejudices of the vulgar of this country in eating the farinaceous part of their diet made into the shape of a loaf, that not only every other mode of preparing the farinacea for food has fallen into disuse, but potatoes, rice, barley, &c. are converted into this favourite form. In the operation of making fine bread, not only the nutritious properties of the gluten are greatly diminished, but full a third part of the original corn is previously taken away in the form of bran. Nature unquestionably intended that man should use the whole of wheat for food; a convincing proof of which is, that, although fine flour simply boiled lies heavy on the stomach, whole wheat cooked in the same manner, usually termed *furmenty*, or coarse flour made into dumplings or unfermented cakes, can be eaten by those who have the most delicate stomachs without inconvenience. This difference depends on the bran being mixed with the flour, by means of which the glutinous part is more divided, as well as on account of its being in a smaller proportion to the whole. That a smaller quantity of unfermented farinaceous food, than of fine bread, will enable a man to support hard labour better, is not matter of opinion, but of experiment. What description of men undergo more fatigue than sailors? And the chief part of their diet consists of unfermented biscuits, made of coarse flour, pease-pudding, boiled oatmeal, and similar provisions. It was an observation of Brindley, the celebrated canal-engineer, that in various works in which he had been engaged, where the workmen being paid by the piece, each exerted himself to earn as much as possible, men from the north of Lancashire and Yorkshire, who adhered to their customary diet of oat-cake and hasty-pudding, sustained more labour, and obtained more money, than such as lived on bread, cheese, bacon, and beer, the general diet of the labourers of the south, and that those individuals who ate their food *cold*, were capable of more exertion than those who used it hot. The northern counties are proverbially known to produce the tallest and stoutest men of which England can boast; a strong proof that their habitual diet of unfermented farinacea must be wholesome and natural. The greater part of mankind always has subsisted, and at present does subsist, on unfermented grain. The inhabitants of Asia live on unfermented rice; the Chinese are unacquainted with the art of making bread; at least we are informed by late travellers, that they prepare the farinaceous part of their food by boiling it in water or in steam: the natives of America simply boil their maize; and, as far as we are informed, the art of making fermented bread is unknown throughout the Continent of Africa.—But, to come nearer home, the common diet of our neighbours, the Dutch, who are a very healthy people, is boiled barley; and the hardy and enterprising Scots, it is well known, live on oatmeal simply boiled, and unfermented cakes made of the same kind of grain, or of peas, or barley-meal. Nor does the preparation of such dishes require any more fuel than is necessary to boil a tea-kettle. Those made of the whole grain may be advantageously prepared over night, and warmed at the time of eating. Rice is a general article of diet, and may be made into a variety of dishes. Simple boiling is all that is required to render it palatable. It may be eaten alone, or with milk. Even oats and barley are more agreeable, as well as more wholesome, when boiled than when made into bread. The people of England are little accustomed to the use of boiled grain, though in many countries it is eaten as a luxury. Boiled barley, so greatly approved by the Dutch, may be eaten with milk, butter, or molasses. It is capable of thickening a great quantity of water, and has a far greater degree of nourishment than any other European grain of the same expense. That wholesome bread may be procured at a price inferior to any hitherto suggested, is well ascertained by mixing the fine flour of Indian Corn with that of wheat in equal proportions. No substance used as aliment has been more fully and satisfactorily proved to be nutritious than this corn, which has of late been much imported from North America, where it forms a large part of the diet of both rich and poor. The flour of this corn possesses, to most, an agreeable sweet flavour; so that some persons, who have accustomed themselves to the bread made of it, find a difficulty in returning to the use of any other; and "I have known (says Dr. Lettsom) individuals so fond of it as to import on their own accounts. The Indians, who live chiefly on this corn, are remarkably healthy; and the stone in particular is a disease rarely known among them."

Natural History.

NATURAL PHENOMENA.

"In mari multi latent."

TO THE EDITOR.

SIR,—I have referred to the second volume of the *Kaleidoscope*, page 397, and found there your editorial reply to *Indagator*, giving to him the same references as you gave to me in your notice to correspondents, namely, Messrs. Bingley and Penant; and although you have not, Mr. Editor, followed up your promise of giving the referential extracts from these writers, I am quite satisfied of the credit which every reasonable person ought to give to the concurrent testimony of such eminent naturalists. The account of Doctor Anderson (in the volume of the *Kaleidoscope* alluded to) respecting the rapidly-formed ponds of water, and the extraordinary rapid manner in which they are supplied with fish in Hindostan and many tropical climates, is certainly singular; yet I am not so fastidious as to affect scepticism where none is requisite, as all these, and many still more improbable, can be explained on purely physical principles.

In Norway, rats are said to be rained down; and in South America, snakes, lizards, toads, frogs, &c. are showered from the clouds in a similar manner. A much-respected scientific friend of the writer, and a subscriber and an occasional correspondent of your own, Mr. Editor, has informed me lately, that he witnessed a similar case of flukes or flounders being rained down upon the earth.* As I place the utmost confidence in my friend's information, whose veracity is unimpeachable, I likewise believe the affair of which I formerly gave you an account, and which occurred in Rodney-street.

Passing over these singular phenomena in natural history, which are probably effected by the powerful suction of the air, I beg to inquire, if, after the testimony of Captain Holdridge and other respectable mariners, in confirmation of the existence of the great sea serpent, would it not be an act of extravagant scepticism to doubt the existence of that huge monster of the deep, the kraken? A celebrated professor has remarked, in one of his academical prelections, that if we believe nothing without proof, there are many things we can never believe† at all. Now, judging by the incredulity which was entertained of the sea serpent, the unicorn, and the kraken, some years ago, and the testimonial proofs given lately of the first, and some time ago of the second of these‡ being existing, I should suppose little doubt might be held on the subject of the kraken. It appears, indeed, that the human mind, in all ages, and in almost all places, has rested implicit confidence in the extravagant chimeras of fancy, or the mere ebullitions of imagination; but this evil tendency to ignorance and superstition has been fully counterbalanced by the affectation of discrediting such of "Nature's wondrous works" as were not testified, either by the criterion of common experience, or supported by a multiplicity of indisputable evidences; thus leaving some of the most stupendous and marvellous works of her economy objects of ridicule, disgust, and disbelief, instead of raising that admiration and reverence which a contemplation of her prolific and inexhaustible stores ever inculcated on the mind, which ranges with unspeakable delight over the wide fields of created being,—which admires, wonders, and raises its ideas

"From nature, up to nature's God."

The contemplative mind, in taking a survey of the inimitable works of nature, cannot but expand at beholding the multifarious organization of being endowed with life and feeling; for "not only the forest, air, and waters teem with animals of various kinds, but almost every vegetable and leaf have millions of minute inhabitants, some of which are found objects of the greatest curiosity;" but even those minute animals are found to be the receptacles of more minute animalcules. When we divest ourselves of prejudice, and impartially investigate the pages of the natural historian, we may still find descriptions, incidents, and opinions tending to stagger our belief; and we may find also a difficulty in overcoming our own scruples respecting the probability of many adventures and experiences related; but difficulties with the admiring student of natural history merely accelerates exertion, and exertion tends to the production and promotion of truth.

It seems to be a general law with Nature, that the most huge, voracious, and destructive animals propagate their species less than those less offensive creatures of either the forest or the deep. We easily know that, notwithstanding the established existence of the sea serpent, it has been seldom seen. Now, suppose that the kraken being, at least, at an average, one hundred times larger than the serpent, should be a hundred times less prolific, it then occurs that this huge creature has a hundred times less chance of being seen than the sea serpent; and the less seldom it is seen, the greater the difficulty of establishing a belief in its real existence.

I know not why more credit should be given to any of our present navigators than to such writers as Pliny, Paulinus, Pontoppidan, Wormius, Montfort, Shaw, and others, who all concur in the fact, "that, during the warmest days in summer, a huge animal has been observed in the north sea, like a floating island, a quarter of a mile in diameter, of a dark greenish colour, much covered with sea weeds; that it ascends to the surface, and having stretched a number of vast arms, like masts of ships,* it rests for some time; after which it slowly descends to the bottom, causing a great eddy in the surrounding waters."

Bishop Pontoppidan says of his Norwegian countrymen, "Our fishermen unanimously affirm, and without the least variation in their accounts, that when they row out several miles to sea, particularly in summer, and by their situation (which they know from certain points of the land) expect to find 80 or 100 fathoms water, it often happens that they find no more than 20 or 30, and sometimes less; at these places they find the greatest plenty of fish, especially cod and ling. Their lines, they say, are no sooner out than they may draw them up with the hooks full of fish; by this they judge that the kraken is at the bottom," &c.

The Norwegians call it kraken, and some of their mariners soe-draulin, that is, soe-trolden, or sea-mischief.

Pliny, no doubt, alludes to this huge monster of the deep when he says, "*maximum animal in indico mari pristis et Balæna est*," &c. And Penant, in his descrip-

* P. N. of P. P. will excuse this passing tribute of respect from the writer.

† Beattie's Moral Philosophy.

‡ Campbell, the missionary, saw or obtained a head of the unicorn, and, I believe, was testified by Dr. Philip, Missionary Secretary at the Cape of Good Hope.

* Query, a flat, or a seventy-four?

tion of the cuttle fish (of eight arms) no doubt alludes to a species of the kraken, as seen in the Indian seas. Crantz, the missionary, in his History of Greenland, corroborates the statements of the Norwegian fishermen, as drawn by his Reverence, Bishop Pontoppidan.

Shaw has been more copious than Penant on this subject. He says that "the existence of some enormously large species of the cuttle fish tribe in the Indian and northern seas can hardly be doubted; and although some accounts have been, probably, exaggerated, yet there is reason to believe that such species far exceed those generally observed about the coasts of the European seas." I am not ignorant of many communications made to you some years ago on this same subject, when the serpent of the deep, the unicorn, mermaid, and kraken, were all accounted the creatures of mere fancy; now, as it turns out that some of these have both a "local habitation and a name" in the scale of created beings, it may not be uninteresting to see if they are not all equally worthy of our credit and admiration. L.

☞ We shall not fail next week to republish the extract respecting showers of fish, to which we alluded in the *Kaleidoscope* of the 29th ult.—*Edit. Kal.*

LARGE SERPENT.

A rival to the sea serpent has made its appearance in Canada. The following account of it is from the *Montreal Herald:*

A gentleman of this city, in the habit of constant communication with the inhabitants of L'Assomption and its environs, has related to us the following novel circumstances, which he derived from the very proprietor of the land which was the scene of the occurrence:—About ten days ago, a woman with three of her children were gathering strawberries on the farm of one Valliant, distant two or three miles from the village abovementioned. Meeting with little success, the children asked their mother's leave to go to a thicket close by, where they thought they might find the fruit in greater quantity. Leave being granted, they entered the wood; but had not long been out of sight before they re-appeared, running with all their might, and in great affright, as if flying from some danger. Being asked what had happened, they described, in their own imperfect way, that they had seen some living and monstrous thing on a tree. This account excited the mother's curiosity so strongly as to induce her, in spite of a feeling of apprehension, to return with them and see what it was. She accordingly accompanied them; but, what was her dismay, when she beheld an enormous serpent, curled spirally round a tree, its tail resting on the ground, and its head waving above the topmost foliage, as if looking around for, or watching the motions of, some intended prey. It is not easy to imagine the terror of the little human group. Scarcely had they strength to retire and tell the neighbours what they had seen.—Now Jean Baptiste, like all of French extraction, neither wants courage nor the spirit of enterprise; accordingly, three men set out, one of whom, armed with a musket, was cautiously to lead the way, steal on, and, if possible, disable the monster, after which the others were to assist in putting an end to him. They entered the grove and looked around, but in vain; nothing was to be seen; and they almost began to suspect that the woman's imagination had converted the twisted trunk of a tree, and a rotten branch waved by the wind at its top, into a reptile whose existence in Canada was unknown. Recollecting, however, that something similar had, it was said, occurred near the falls of Laquarro river, they resolved, as a last resource, that the musket should be fired, to start it, if lurking near, of which, however, they had little expectation. It was accordingly discharged, when, lo! a tract of tall grass, not far from them, was violently agitated, and writhing through it with, as it seemed to them, the velocity of a race-horse, appeared an enormous serpent, whose body, occasionally rising, disclosed a bulk as large as that of a water-bucket, causing in its flight a leaf-like rustling sound, and leaving behind a long wake of waving grass. Hurrying through the tract, it crossed a ploughed field, through which its passage was only to be traced by a cloud of dust, entered a wood and disappeared.—After recovering from their surprise, and some conjectures concerning its length, it struck them that it might be tolerably ascertained from the height of the tree where it had at first been seen. Having accordingly measured it, they found it to be thirty feet; adding, therefore, to the straight line of the tree two-fifths, to equal the spiral line of the reptile's body, the latter may be fairly estimated at fifty feet.—Some time previous to the occurrence, several sheep, seven cows, and a horse had disappeared, and, it was supposed, become the prey of bears; but, as no remains of even their bones have been found, it is now considered probable that they must have been swallowed entire by this serpent, after the manner of the East India Boa Constrictor, so well described by Buffon and Goldsmith, and more lately in some of the European papers.—The first inquiry that presents itself on this subject is, whether thy account is true: of this we cannot doubt, as it is notoriousle affirmed by the seven persons whom we have mentioned as having seen the creature, and who can scarcely be supposed to have combined in the fabrication and propagation of a fiction that could not be suggested by ordinary ideas, nor concocted by rustic imaginations: nor does its singularity afford a very strong presumption against its truth, since almost every year discovers things of the existence of which the present generation had no idea, not even traditionally, and the American sea serpent in its favour.

Scientific Notices.

MATCHLESS RAPIDITY OF COMMUNICATION.

What we are about to lay before our readers will, in all probability, stagger their faith much more than the great sea serpent, or Captain Symmes's theory of the earth. Before we proceed, however, to copy a paragraph from the Brighton paper, we may observe that we should be glad to know the precise time when the editor first noticed the rapid mode of communication of which he has recently made trial. He says, "a long time has elapsed" since he first mentioned the subject; and we must wait until we hear from him something more specific before we can ascertain whether, as we suspect, a correspondent of the *Kaleidoscope* has not anticipated his grand scheme, In the 5th volume of our minor journal, published March 15, 1825, an original letter appeared, headed "Quick Conveyance," in which the writer suggests a mode of communication almost precisely similar to that described in the Brighton paper. His medium was a tube, through which goods, &c. were to be propelled by the pressure of the atmosphere, produced by air-pumps. Our correspondent, who resides at No. 14, Concert-street, is very well known in Liverpool; and if the experiment made at Brighton be really as successful as is stated, and if the hint which he conveyed through the *Kaleidoscope* was published prior to that in the Brighton paper, he ought, at least, to share the honour of the discovery.

Before we learn further particulars from Brighton, we shall forbear to enlarge upon the subject. There are, however, two points upon which we shall make a remark *en passant.*

Some people may at first laugh at the thought of a person being carried forwards at the enormous rate mentioned in the annexed paragraph; but they should recollect that if the atmospheric air, which surrounds the traveller, is impelled along with him, he will feel no inconvenience by the rapidity of the motion. Sadler and Livingstone, during their aërial excursion from Liverpool, on the 28th of September, 1819, moved at more than the rate of sixty miles an hour, without being at all sensible of the motion; and balloons have been known to travel at a much greater speed.

If, therefore, the atmosphere moves at the same rate as the traveller, he will feel no inconvenience; but when the Brighton editor talks of conveying passengers or goods one hundred miles in the hour, is he aware that such a velocity, if practicable, would produce such immense friction that the wheels would become red hot, or perhaps fused?

The wheels of a common carriage have been known to catch fire when their velocity could not have exceeded one-sixth of that spoken of by our contemporary; and windmills have often been burned down by the heat caused by friction. In a balloon there is little or no friction, but how it can be avoided when any kind of carriage is used, we cannot at present conceive.—*Edit. Kal.*

"A long time has elapsed (says the *Brighton Gazette*) since we inserted in our columns a paper relative to a mode of travelling which had been discovered, whereby the rapidity of moving to and from places of great distance from each other might be effected in so short a time as to remind one of some of Munchausen's flights. It however occasioned considerable attention, and the projector has since gone on perfecting his system, in which he has succeeded, and completed a tunnel, through which a carriage is propelled by the atmosphere. We have had the honour of being the first to travel in this novel mode, and will endeavour to give a short account of the means which are used to produce it. The adaptation of this propelling principle is such, that the rate of travelling might be increased to 100 miles per hour, and that for the transit of passengers, information, and merchandise, it is one of the most important discoveries of any age whatever, and must prove of the greatest consequence to the commercial world.

"The tunnel has in the bottom a railway, on which runs a carriage, closed at one end all round within an inch of the tunnel; the tunnel is connected at each end with air-pumps, which are worked by steam, and exhaust the air within at either end, by which the atmosphere at the other forces the carriage on; the exhaustion of air can be changed from one end of the tunnel to the other, instantaneously, and the motion of the carriage is at the same moment reversed. The vacuum occasioned by the exhaustion is so trifling, that not the least inconvenience is felt when placed in it, which, if any did exist, could not, however, be experienced by travelling in the carriage, for the vacuum is filled before persons in the carriage pass over the space. The atmosphere acts in this tunnel precisely with the same certainty and effect that a fall of water does on a wheel. There can be no objection to travelling at so rapid a rate with the atmosphere, which appears at first so very fatal to the principle. We shall enter more fully into this important discovery on a future day."

WANTED, a SITUATION as Companion to a LADY; salary not so much an object as a quiet and respectable asylum. Would have no objection to look after household affairs, or make herself generally useful.—Apply (if by letter, post paid) to N. O. at the office of this paper.

To Correspondents.

WOULFE'S APPARATUS.—We will readily procure an engraving of the last diagram with which we have been favoured by *H.*, but it will be necessary that the drawing and the descriptive letter should be revised and compared by the writer, as the drawing does not contain the letters mentioned in the letter. If our correspondent will send as soon as convenient to himself, any day about noon, a packet will be ready for his messenger. We hardly need add, that we shall be glad to have it returned as soon as possible, in order that it may have a place in the next *Mercury* and the succeeding *Kaleidoscope.* A personal interview with the writer would greatly facilitate the transaction.

Look On is respectfully informed, that after we have seen more of the proffered communication, we can say more on the subject than we can at present. We do not wish to pledge ourselves to the insertion of six or seven hundred lines from a sample of about threescore. However well the whole may be written, there must be a *story*, or plot, of sufficient interest to render it acceptable. *Nous verrons.*

ORIGIN OF ESTABLISHMENTS FOR THE INSTRUCTION OF THE DEAF AND DUMB.—We have just received from Dr. Albert an interesting paper on this subject, and shall have great pleasure in giving it a place in the next *Kaleidoscope.*

Ginger Beer will keep till next week.

ASYMPTOTES.—We shall next week insert an article on this subject, with an explanatory engraving.

We have further to acknowledge *H.*—*T. P.*—*Look On*, on the Hebrew language.

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